Sound Velocity Measurements at Simultaneous High Pressure and Temperature For Polycrystalline San Carlos Olivine	X17B1

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Dense isotropic polycrystalline San Carlos olivine were fabricated at high pressure and high temperature in a Girdle-type high pressure apparatus using hot-pressing techniques developed previously by Gwanmesia and Liebermann (1992; see also Gwanmesia *et al.*, 1993) and crushed natural crystals as starting materials. These specimens have bulk densities within 1% of the X-ray density and exhibit compressional (P) wave and shear (S) wave velocities within 1% of single crystal elastic moduli of Kumazawa and Anderson (1969). Recent technological development in our laboratory has enabled precise interferometric measurements of elastic wave velocities in mienrals to be performed to pressures of 9 GPa and temperatures of 1500 K in a DIA-type, cubic anvil apparatus (SAM85) interfaced with white X-ray radiation from the superconducting wiggler port of the National Synchrotron Light Source at Brookhaven National Laboratory (see Liebermann *et al.*, 1997). We have performed measurements this important mantle mineral (ultrasonic and X-ray) to 7 GPa and 800 K.